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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,426	12/03/2003	Dennis R. Simons	246079US6	4013

22850 7590 02/04/2005

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EXAMINER

HERRING, LISA L

ART UNIT PAPER NUMBER

1731

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/725,426

Applicant(s)

SIMONS ET AL.

Examiner

Lisa Herring

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because "said" language was found in the 12th line of the abstract and a grammatical error on the 2nd line. To remove the grammatical error, remove the word "a" preceding the phrase "chemical vapour deposition reactions". Correction is required. See MPEP § 608.01(b).
2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

3. Claims 3-7 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). The phrase in claims 3-5 and 7, "a method according to any one or more of the preceding claims", fails to refer to other claims in the alternative only. Accordingly, the claims 3-7 have not been further treated on the merits.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geittner et al. ("PCVD at High Deposition Rates, Journal of Lightwave Technology, Vol. LT-4, No. 7, July 1986) in view of Roba (4,608,070) and Davis (4,664,689). Geittner discloses a method of manufacturing an optical fiber by carrying out one or more chemical vapor deposition reactions in a substrate tube comprising:

- i) supplying one or more glass forming precursors, which may or may not be doped, to the substrate tube; (pg. 818, Column 1, last paragraph)
- ii) supplying a stoichiometric excess amount of oxygen to the substrate tube (pg. 818, Column 2, 1st paragraph),
- iii) setting up a reaction in the substrate tube between the reactants supplied in steps i) and ii) so as to effect the deposition of one or more layers of glass on the interior of the substrate tube; (pg. 818, Column 1, 1st paragraph)
- iv) subjecting the substrate tube thus coated in step iii) to a collapsing process so as to form a preform, and finally (pg. 818, Column 2, 2nd paragraph)
- v) drawing the preform into an optical fiber while heating the preform (pg. 818, Column 2, 3rd paragraph)

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vi) PCVD conditions where the pressure used ranges from approximately 10-25 mbar during step iii) (pg. 818, Column 1, 3rd paragraph)

Geittner fails to explicitly state the preform is heated during the drawing process. However, it is well known in the art in order to draw a glass preform into fiber, heating is required, as evidenced by Davis (Column 1, lines 39-45). Geittner also fails to specifically disclose the subsequent cooling of the optical fiber. However, Davis discloses a method and apparatus designed to cool fiber generally at 1000 °C in an optical fiber cooler in about 0.1 to 2.0 seconds (Column 4, lines 66-68) in order to decrease the temperature of the fiber to provide a uniform coating (Column 1, lines 39-45). Accordingly, it would have been obvious to one skilled in the art at the time the invention was made that while drawing the optical preform into fiber, in the process disclosed by Geittner et al, to heat the preform and to subsequently cool the optical fiber for the advantage of uniformly coating the fiber downstream.

Geittner also fails to explicitly disclose the Reynolds number is in accordance with the formula $120 < Re < 285$ during the deposition process according to step iii). However, Geittner discloses the reaction takes place in the laminar flow range according to the Hagen-Poiseuille equation (pg. 819, Column 2, 2nd paragraph). Additionally, Geittner discloses the SiO₂ incorporation efficiencies were 100% and 80-90% for the dopants, (pg. 818, column 2, last paragraph, pg. 821, Column 2, 1st paragraph) and disclosed if the experimental parameters are below the lower limits given in Fig. 2 are chosen, the incorporation efficiency drops below 95%. (pg. 819, Column 1, 1st and 2nd paragraph) Since the applicant states on pg. 5, lines 21-28, the

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criticality of the Reynolds number is to ensure an incorporation efficiency of more than 90% and the stability of the plasma, it is inherent in the process disclosed by Geittner that the Reynolds numbers are within applicants stated formula of $120 < Re < 285$, since Geittner's incorporation efficiencies range from 80-100% and the plasma must be stable in order to produce the preform at such high incorporation efficiencies.

Alternatively, Roba discloses a deposition process in a substrate tube (abstract) where the deposition quality in terms of uniform dopant concentration, axial uniformity of deposited mass, and absence of localized imperfections is strictly dependent upon the flow of gases carrying the glass particles. Roba discloses such flow should be laminar conditions and hence must be limited to a finite range of values, which depend on the reactor type. Roba fails to specifically disclose the range of Reynolds numbers as recited in Claim 1. Therefore, since it is clearly suggested by Roba that laminar conditions are required in order provide good deposition quality and there is a range of finite values in the laminar range that depends on the reactor type, it would have been obvious to one skilled in the art at the time the invention was made to optimize the Reynolds number, since it has been held that discovering an optimum value as a result effective variable only involves routine skill in the art. *In re Boesch*, 617 F. 2d 272,205 USPQ 215 (CCPA 1980).

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/165,620 in view of Geittner et al. ("PCVD at High Deposition Rates, Journal of Lightwave Technology, Vol. LT-4, No. 7, July 1986) or alternatively in view of Roba (4,608,070). Claim 1 of Application No. 10/165,620 discloses all of the method steps of Claim 1 of Application No. 10/725,426 but fails to specifically disclose that the Reynolds number is in accordance with the formula $120 < Re < 285$ during the deposition process according to step iii). However, Geittner discloses the reaction takes place in the laminar flow range according to the Hagen-Poiseuille equation (pg. 819, Column 2, 2nd paragraph). Additionally, Geittner discloses the SiO₂ incorporation efficiencies were 100% and 80-90% for the dopants, (pg. 818, column 2, last paragraph, pg. 821, Column 2, 1st paragraph) and disclosed if the experimental parameters are below the lower limits given in Fig. 2 are chosen, the incorporation efficiency drops below 95%. (pg. 819, Column 1, 1st and 2nd paragraph) Since the applicant states on pg. 5, lines 21-28, the criticality of the Reynolds number is to ensure an incorporation efficiency of more than 90% and the stability of the plasma, it is inherent in the process disclosed by Geittner that the Reynolds numbers are within applicants stated formula of

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120 < Re < 285, since Geittner's incorporation efficiencies range from 80-100% and the plasma must be stable in order to produce the preform at such high incorporation efficiencies. Therefore, it would have been obvious to one skilled in the art the time the invention was made that the process disclosed by Claim 1 of copending application 10/165,620, could have used the flow rates, diameters, temperatures, and pressures as disclosed by Geittner, which includes the Reynolds numbers of the formula 120 < Re < 285, for the advantage of obtaining incorporation efficiencies.

Alternatively, Roba discloses a deposition process in a substrate tube (abstract) where the deposition quality in terms of uniform dopant concentration, axial uniformity of deposited mass, and absence of localized imperfections is strictly dependent upon the flow of gases carrying the glass particles. Roba discloses such flow should be laminar conditions and hence must be limited to a finite range of values, which depend on the reactor type. Roba fails to specifically disclose the range of Reynolds numbers as recited in Claim 1. Therefore, since it is clearly suggested by Roba that laminar conditions are required in order provide good deposition quality and there is a range of finite values in the laminar range that depends on the reactor type, it would have been obvious to one skilled in the art at the time the invention was made to optimize the Reynolds number, since it has been held that discovering an optimum value as a result effective variable only involves routine skill in the art. In re Boesch, 617 F. 2d 272,205 USPQ 215 (CCPA 1980).

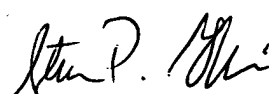
This is a provisional obviousness-type double patenting rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Herring whose telephone number is 571-272-1094. The examiner can normally be reached on Mon-Fri. 7am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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